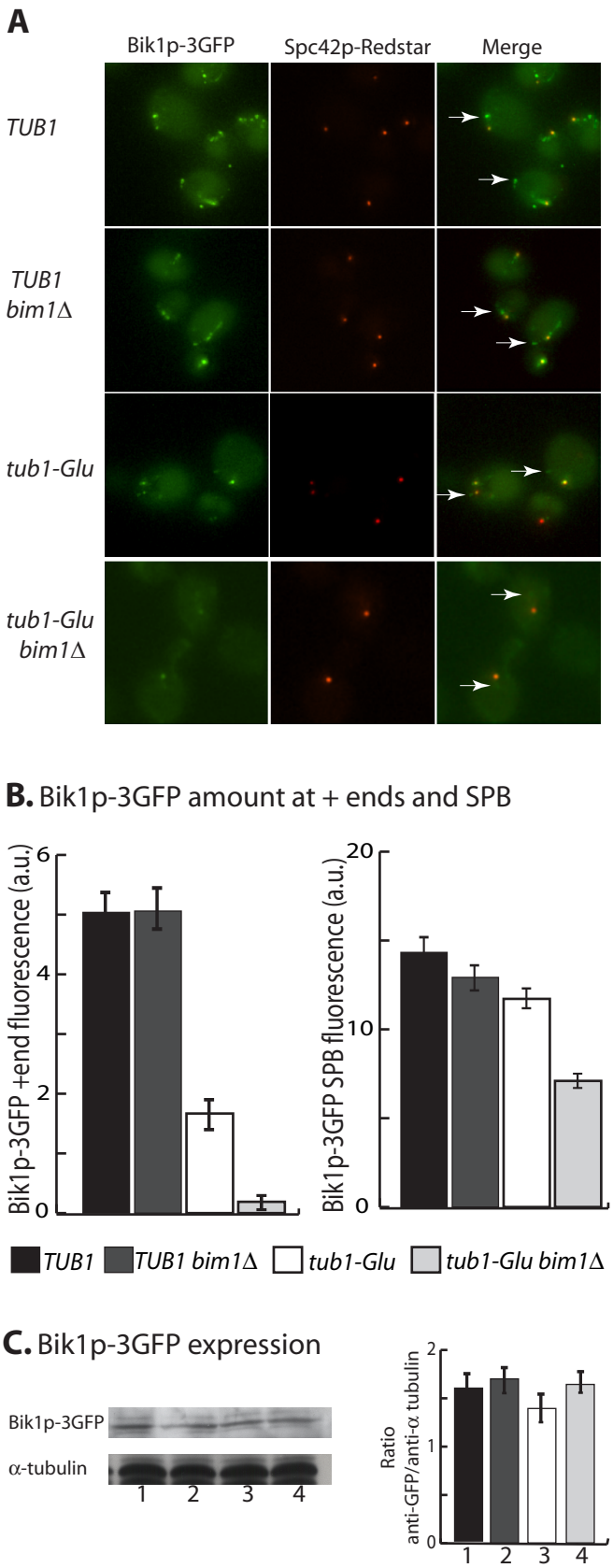
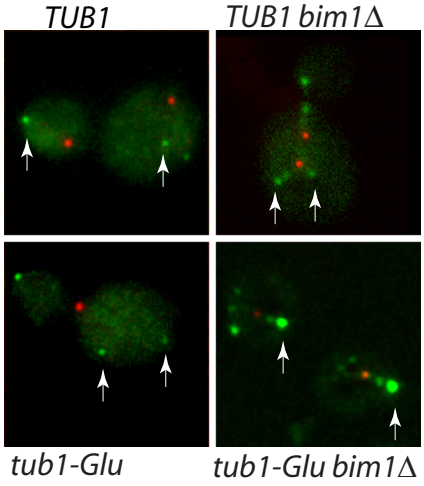
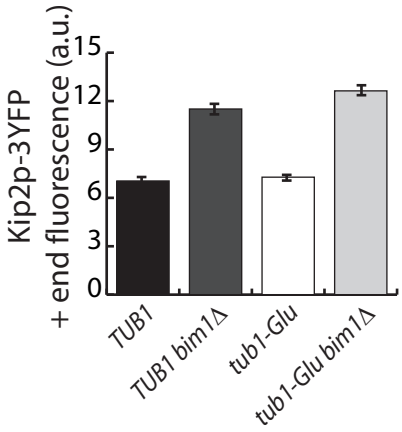

A
Bik1p-3GFP
Spc42p-Redstar
Merge
TUB1
TUB1 bim1Δ
tub1-Glu
tub1-Glu bim1Δ
B. Bik1p-3GFP amount at + ends and SPB
Bik1p-3GFP +end fluorescence (a.u.)
0
2
4
6
Bik1p-3GFP SPB fluorescence (a.u.)
0
10
20
TUB1
TUB1 bim1Δ
tub1-Glu
tub1-Glu bim1Δ
C. Bik1p-3GFP expression
Bik1p-3GFP
α-tubulin
1 2 3 4
Ratio
anti-GFP/anti-α tubulin
0
1
2
1 2 3 4

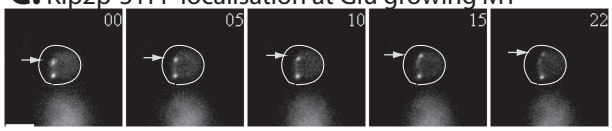
A. Kip2p-3YFP localisation



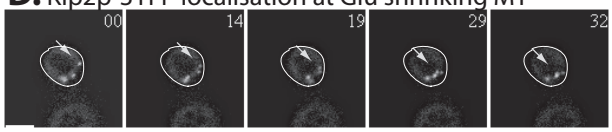
B. Kip2p-3YFP + end fluorescence



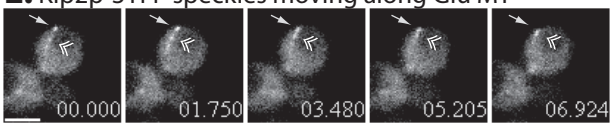
C. Kip2p-3YFP localisation at Glu growing MT



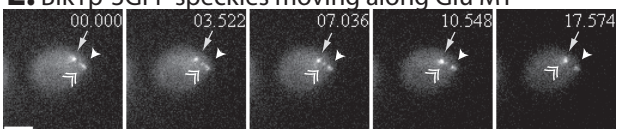
D. Kip2p-3YFP localisation at Glu shrinking MT



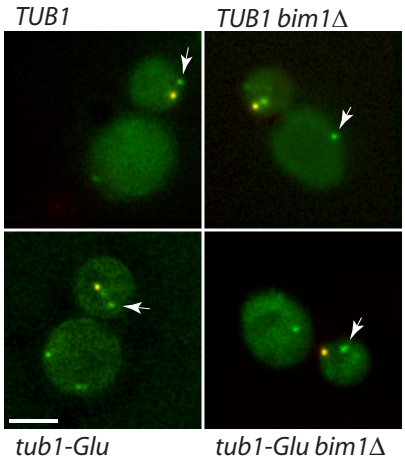
E. Kip2p-3YFP speckles moving along Glu MT



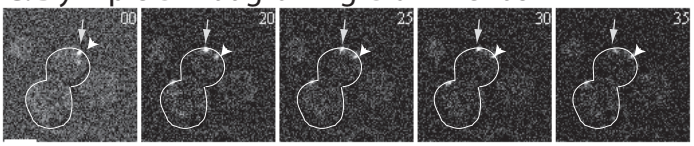
E. Bik1p-3GFP speckles moving along Glu MT



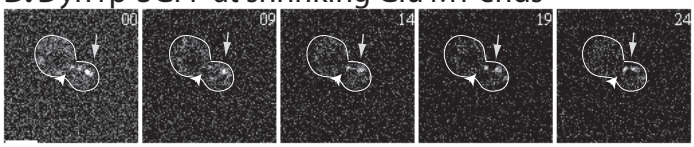
A. Dyn1p-3GFP localization



C. Dyn1p-3GFP at growing Glu MT ends

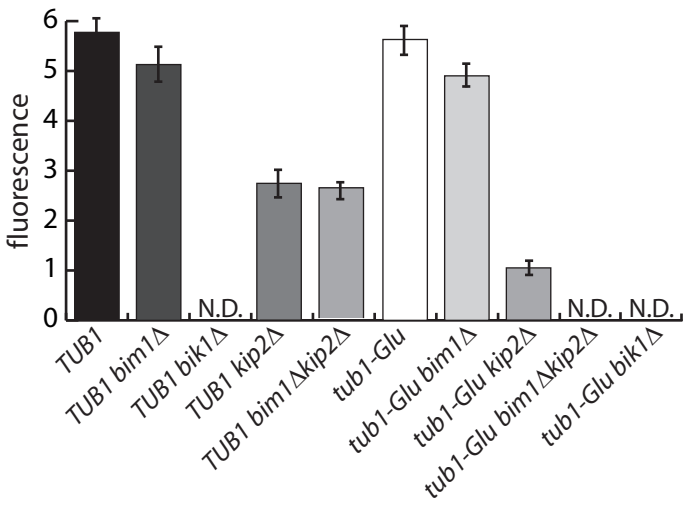


D. Dyn1p-3GFP at shrinking Glu MT ends

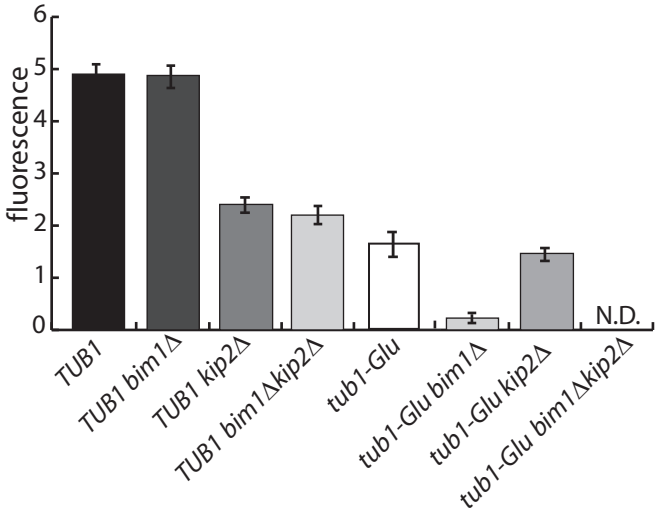


E. Dyn1p-3GFP speckles moving along a Glu MT

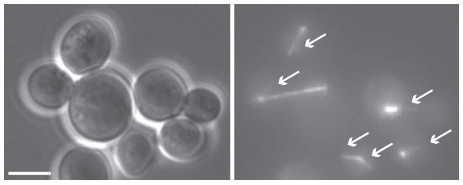
B. Dyn1p-3GFP fluorescence at + ends



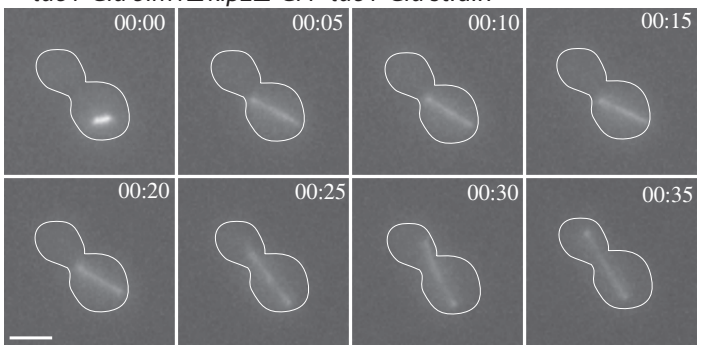
F. Bik1p-3GFP fluorescence at + ends



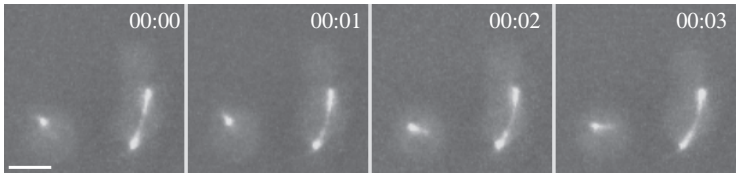
A Astral MT are presents
in tub1-Glu bim1Δ kip2Δ GFP-tub1-Glu strain



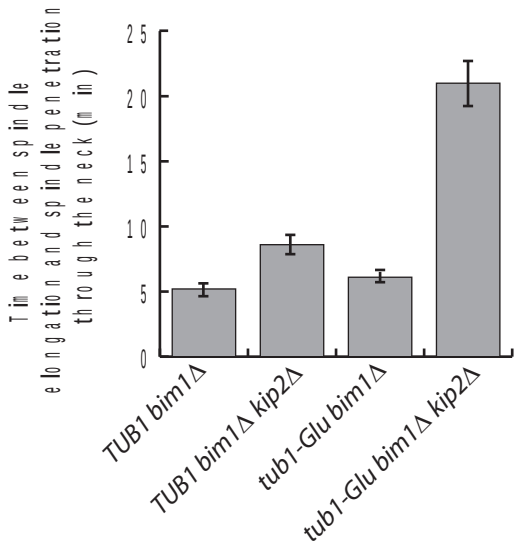
B Delay in spindle penetration in
tub1-Glu bim1Δ kip2Δ GFP-tub1-Glu strain



C Spindle bending in the mother cell
tub1-Glu bim1 kip2 GFP-tub1-Glu strain

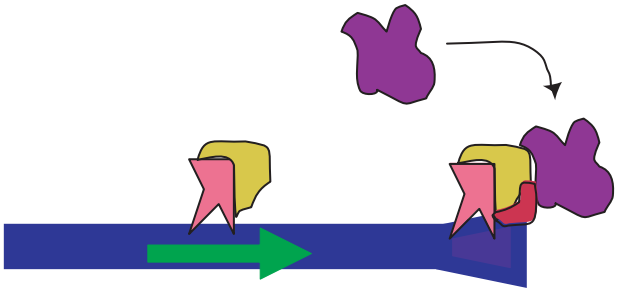


D Delay in spindle penetration in the mother cell



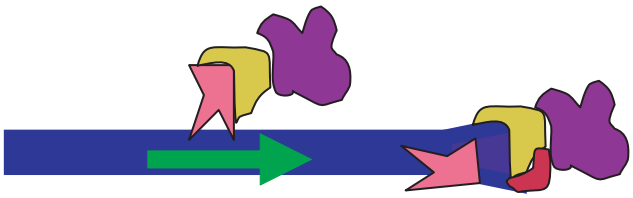
A

Current model

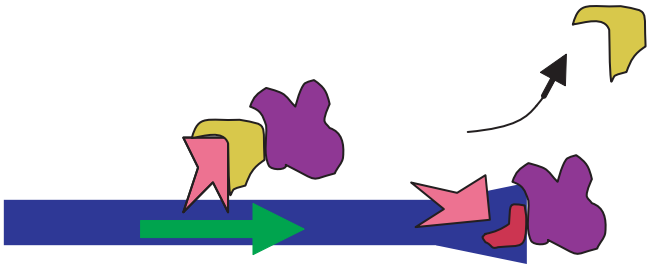


B

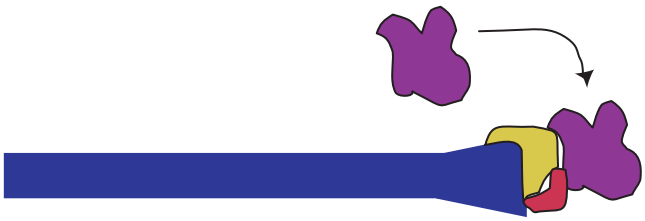
wt microtubules



Glu microtubules



KIP2 deleted microtubules



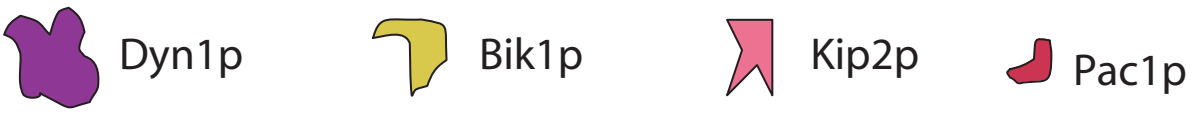


Table 1: Microtubule length in G1 cells

Strain	*TUB1*	*TUB1 bim1Δ*	*TUB1 kip2Δ*	*TUB1 bim1Δ kip2Δ*	*tub1-Glu*	*tub1-Glu bim1Δ*	*tub1-Glu kip2Δ*	*tub1-Glu bim1Δ kip2Δ*
Microtubule length	1.89 +/- 0.07 (n=80)	1.62 +/- 0.04 (n=123)	1.61 +/- 0.04 (n=117)	1.72 +/- 0.04 (n=185)	1.72 +/- 0.05 (n=146)	1.57 +/- 0.04 (n=130)	1.52 +/- 0.04 (n=125)	1.67 +/- 0.04 (n=158)

Microtubules were vizualized with tubulin GFP fusion in haploid cells. Lengths are in µm. n: number of measured microtubules.

Table2 : Cytoplasmic microtubule dynamics

	Growth rate (µm/min)	Shortening rate (µm/min)	Catastrophe frequency	Rescue frequency	Time spent (%) Growing	Shrinking	Pausing	Total time (s)	+ends number MT/cell
TUB1	2.26 +/-0.42 (n=30)	3.45 +/- 0.31 (n=29)	0.015	0.011	39	25	29.6	2675	2.83 +/-0.27 (n=50)
*TUB1 bim1*Δ	1.97+/-0.26 (n=55)	1.84+/-0.23 (n=61)	0.012	0.009	27.1	30.3	39.3	5090	2.7 +/-0.26 (n=50)
tub1-Glu	2.38 +/-0.19 (n=34)	3.26 +/-0.51 (n=29)	0.014	0.017	42.9	23.4	26.9	2502	2.78 +/-0.25 (n=52)
*tub1-Glu bim1*Δ	1.92 +/-0.77 (n=54)	1.81 +/-0.40 (n=50)	0.012	0.013	29.1	28.8	39.2	5840	2.64 +/-0.2 (n=49)

G1 microtubules were vizualized with Kip2p-3YFP fusion in diploid cells. Rates of growing and shrinking are presented in µm/min +/- S.E.M. Frequencies of rescue and catastrophe are in events/s. n: number of events.